

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): An inverter for converting a DC input voltage into an AC output voltage ~~using a sigma-delta modulation (SDM)~~, the inverter comprising:

(a) a sigma-delta modulation (SDM) controller for producing a modulated output voltage signal according to a reference voltage signal; signal, wherein the SDM controller comprises:

(i) an integrator for producing an integrator output signal having an integrated output slope according to a difference between the reference voltage signal and the modulated output voltage signal;

(ii) a sample-and-hold circuit electrically connected to the integrator for sampling and holding the integrator output signal; and

(iii) a quantizer circuit electrically connected to the sample-and-hold circuit and to an input terminal of the integrator through an output terminal thereof for quantizing the integrator output signal and producing the modulated output voltage signal;

(b) a driving circuit electrically connected to said the SDM controller for producing a driving signal according to said the modulated output voltage signal; and

(c) a power inversion stage circuit electrically connected to said the driving circuit for producing said the AC output voltage according to said the driving signal.

Claim 2 (canceled)

3. (currently amended): The inverter according to Claim 1 Claim 2, wherein
said the integrated output slope is positive when the difference between the
reference voltage signal and the modulated output voltage signal is a positive value
integrator circuit is an integrator.

4. (currently amended): The inverter according to Claim 1 Claim 3, wherein
said the integrator is a differential integrator.

5. (currently amended): The inverter according to Claim 1 Claim 2, wherein
said the sample-and-hold circuit is a sample-and-hold device and is controlled by an
external sampling signal.

6. (currently amended): The inverter according to Claim 1 Claim 2, wherein
said the quantizer circuit is a two-level quantizer.

7. (currently amended): The inverter according to Claim 6, wherein said the
two-level quantizer is a two-level comparator.

8. (currently amended): The inverter according to Claim 1, wherein said the
modulated output voltage signal is a pulse train.

9. (currently amended): The inverter according to Claim 1, wherein said the
reference voltage signal is input from an external signal generator.

10. (currently amended): The inverter according to Claim 1, wherein said the driving circuit is a high/low side driver.

11. (currently amended): The inverter according to Claim 1, wherein said the power inversion stage circuit comprises:

a power stage circuit electrically connected to said the driving circuit for producing a AC power signal according to said the driving signal and said the DC input voltage; and

a filter circuit electrically connected to said the power stage circuit for producing said the AC output voltage according to said the AC power signal.

12. (currently amended): The inverter according to Claim 11, wherein said the power stage circuit is in a full-bridge configuration.

13. (currently amended): The inverter according to Claim 12, wherein said the full-bridge configuration is a an H-diagonal structure comprising four power switches.

14. (currently amended): The inverter according to Claim 13, wherein each of said the four power switches is a MOSFET.

15. (currently amended): The inverter according to Claim 11, wherein said the filter circuit is a low-pass filter.

16. (currently amended): The inverter according to Claim 11, wherein said the filter circuit comprises an inductor and a capacitor in series.

17. (currently amended): A controller for producing a modulated output voltage signal according to a reference voltage signal, the controller comprising:

(a) an integrator circuit for producing an integrator output signal having an integrated output slope according to a difference between said the reference voltage signal and said the modulated output voltage signal;

(b) a sample-and-hold circuit electrically connected to said the integrator circuit for sampling and holding said the integrator output signal; and

(c) a quantizer circuit electrically connected to said the sample-and-hold circuit and electrically connected to an input terminal of said the integrator circuit through an output terminal thereof for quantizing said the integrator output signal and producing said the modulated output voltage signal.

18. (currently amended): The controller according to Claim 17, wherein said the integrated output slope is positive when the difference between the reference voltage signal and the modulated output voltage signal is a positive value integrator circuit is an integrator.

19. (currently amended): The controller according to Claim 17, wherein said the integrator is a differential integrator.

20. (currently amended): The controller according to Claim 17, wherein said the sample-and-hold circuit is a sample-and-hold device and is controlled by an external sampling signal.

21. (currently amended): The controller according to Claim 17, wherein said the quantizer circuit is a two-level quantizer.

22. (currently amended): The controller according to Claim 21, wherein said the two-level quantizer is a two-level comparator.

23. (currently amended): The controller according to Claim 17, wherein said the modulated output voltage signal is a pulse train.

24. (currently amended): The controller according to Claim 17, wherein said the reference voltage signal is input from an external signal generator.

25. (currently amended): The controller according to Claim 17, wherein said the controller is a sigma-delta modulation (SDM) SDM controller.

26. (new): The controller according to Claim 17, wherein the integrated output slope is negative when the difference between the reference voltage signal and the modulated output voltage signal is a negative value.

27. (new): The inverter according to Claim 1, wherein the integrated output slope is negative when the difference between the reference voltage signal and the modulated output voltage signal is a negative value.

28. (new): In an inverter for converting a DC input voltage into an AC output voltage, a sigma-delta modulation (SDM) controller for producing a modulated output voltage signal according to a reference voltage signal, the SDM controller comprising:

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- (a) an integrator for producing an integrator output signal having an integrated output slope according to a difference between the reference voltage signal and the modulated output voltage signal;
- (b) a sample-and-hold circuit electrically connected to the integrator for sampling and holding the integrator output signal; and
- (c) a quantizer circuit electrically connected to the sample-and-hold circuit and to an input terminal of the integrator through an output terminal thereof for quantizing the integrator output signal and producing the modulated output voltage signal.